



**EMCON**

1433 North Market Boulevard • Sacramento, California, 95834-1943 • (916) 928-3300 • Fax (916) 928-3341

ENVIRONMENTAL  
PROTECTION

*STD 3928*

SO DEC 23 PM 2:16

December 17, 1998  
Project 22605-103.002

Mr. Larry Brown  
Fleet Superintendent  
Interstate Brands Corporation  
1324 Arden Way  
Sacramento, California 95815

Re: Quarterly Groundwater Monitoring Report, Third Quarter 1998, for Interstate Brands Corporation Facility, Located at 945 53rd Street, Oakland, California

Dear Mr. Brown:

At the request of Interstate Brands Corporation (IBC), EMCON has conducted quarterly groundwater monitoring at the above-referenced site. We have prepared this report describing the work conducted during the third quarter 1998. Groundwater monitoring consists of collecting groundwater samples for subjective and laboratory analyses from each monitoring well, measuring groundwater elevation in each monitoring well, and evaluating the groundwater gradient and direction of groundwater flow beneath the site.

The quarterly groundwater monitoring program is in compliance with the Alameda County Health Care Services Agency requirements regarding underground storage tank investigations.

### **GROUNDWATER MONITORING: THIRD QUARTER 1998**

On September 2, 1998, an EMCON technician measured depths to groundwater and collected groundwater samples from the monitoring wells for subjective and laboratory analyses. Floating product was not observed in any of the monitoring wells. Field data sheets are presented in Appendix A. Table 1 presents a summary of groundwater monitoring data. Monitoring well locations are shown on Figure 1. EMCON's sampling and analysis procedures are presented in Appendix B.

Approximate depths to groundwater ranged between 9 and 13 feet below ground surface. The groundwater flow direction was toward the southwest with a hydraulic gradient of 0.05 ft/ft. The groundwater elevation contour map for the September 2, 1998 sampling event is presented on Figure 2.

Groundwater samples collected from wells MW-1 through MW-3 were analyzed for total petroleum hydrocarbons as gasoline (TPHG) and diesel (TPHD), using US Environmental Protection Agency (USEPA) Method 8015 Modified; and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and methyl tert-butyl ether (MTBE), using USEPA Method 8020. The



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samples were analyzed at Columbia Analytical Services, Inc. The analytical results for groundwater samples are summarized in the table, and copies of the laboratory analysis reports and chain-of-custody records are presented in Appendix C. TPHD, TPHG and BTEX were detected in MW-1 and were below laboratory detection limits in wells MW-2 and MW-3. MTBE was not detected in any of the wells. Concentrations of TPHG and benzene in groundwater are shown on Figure 1.

## CONCLUSIONS

Results of this monitoring event indicate that levels of dissolved gasoline hydrocarbons are generally consistent with levels detected during previous sampling events. The groundwater gradient and direction of groundwater flow (southwest) are also consistent with previous monitoring events.


## WORK PROPOSED FOR FOURTH QUARTER 1998

This site is scheduled for semiannual groundwater sampling and monitoring. The next sampling event is tentatively scheduled for March 1999. Groundwater samples will be collected from monitoring wells MW-1 through MW-3 and analyzed for TPHG, TPHD, BTEX, and MTBE.

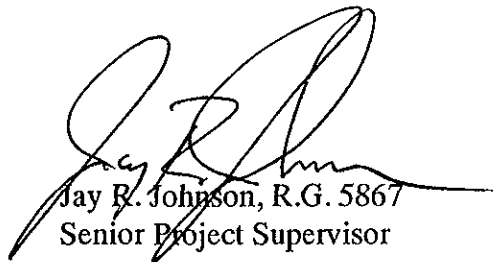
Please call if you have any questions regarding this status report.

Sincerely,

EMCON



Glen VanderVeen  
Project Manager



Jay R. Johnson, R.G. 5867  
Senior Project Supervisor

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Attachments: Table 1 Groundwater Monitoring Data  
Figure 1 Groundwater Analytical Summary Map  
Figure 2 Groundwater Elevation Contour Map  
Appendix A Sampling and Analysis Procedures  
Appendix B Laboratory Analysis Reports and Chain-of-Custody Records  
Appendix C Field Data Sheets

cc: Travis Bryant, IBC  
Susan Hugo, Alameda County Health Care Services Agency  
Eddy So, California Regional Water Quality Control Board

Table 1

**Groundwater Monitoring Data  
Interstate Brands Corporation  
1010 46th Street  
Oakland, California**

Well	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet MSL*)	TPH Diesel (µg/L)	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total Oil & Grease (mg/L)	MTBE (µg/L)			
MW-1	05/26/94	61.84	9.27	52.57	1,300	12,000	57	340	370	3,100	<5.0	NA			
MW-1	07/29/94	61.84	9.81	52.03	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	08/26/94	61.84	9.87	51.97	510/650 [1]	6,700/8,400	22/35	71/97	310/410	1,000/1,400	<5.0/<5.0	NA			
MW-1	10/04/94	61.84	9.89	51.95	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	10/27/94	61.84	9.94	51.90	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	11/30/94	61.84	8.92	52.92	1,300	29,000	480	1,100	1,200	5,300	<5.0	NA			
MW-1	01/03/95	61.84	8.79	53.05	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	01/31/95	61.84	8.33	53.51	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	03/16/95	61.84	8.07	53.77	1,900	29,000	140	1,400	1,800	9,700	<5.0	NA			
MW-1	06/12/95	61.84	9.02	52.82	810/540 [1]	3,900/11,000	23/280	57/610	200/400	680/2,000	<5.0/<5.0	NA			
MW-1	08/30/95	61.84	9.44	52.40	350 [1]	3,300	26	36	250	490	<5.0	NA			
MW-1	11/29/95	61.84	9.93	51.91	270	1,700	20	21	110	210	<5.0	NA			
MW-1	03/06/96	61.84	8.37	53.47	2,500/2,400 [1]	39,000/38,000	690/1,000	1,800/2,000	2,300/2,300	14,000/15,000	5.9	NA			
MW-1	07/08/96	61.84	9.10	52.74	670/580 [1]	3,000/2,600	89/9.5	79/85	140/120	350/270	NA	NA			
MW-1	04/04/97	61.84	9.14	52.70	1,400	3,500	13	27	190	410	NA	<30 [5]			
MW-1	09/23/97	61.84	9.15	52.69	260	2,100	13	11	200	220	NA	<5			
MW-1	03/30/98	61.84	8.73	53.11	-----Well inaccessible for sampling-----										
MW-1	09/02/98	61.84	9.20	52.64	280	1,400	7	7	90	120	NA	<12			
MW-2	05/26/94	63.10	9.30	53.80	<50/<50	<50/<50	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<5.0	NA			
MW-2	07/29/94	63.10	9.70	53.40	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	08/26/94	63.10	9.89	53.21	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	10/04/94	63.10	9.86	53.24	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	10/27/94	63.10	9.96	53.14	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	11/30/94	63.10	8.95	54.15	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	01/03/95	63.10	8.15	54.95	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	01/31/95	63.10	6.96*	56.14	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	03/16/95	63.10	6.37*	56.73	<50/<50	<50/<50	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<5.0	NA			
MW-2	06/12/95	63.10	9.07	54.03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	08/30/95	63.10	9.53	53.57	52 [3]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	11/29/95	63.10	9.74	53.36	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	03/06/96	63.10	7.23	55.87	68 [4]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	07/08/96	63.10	8.84	54.26	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA			
MW-2	04/04/97	63.10	8.70	54.40	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<3			

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Well	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet MSL*)	TPH Diesel (µg/L)	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total Oil & Grease (mg/L)	MTBE (µg/L)
MW-2	09/23/97	63.10	9.18	53.92	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<5
MW-2	03/30/98	63.10	7.14	55.96	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<5
MW-2	09/02/98	63.10	9.37	53.73	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<3
MW-3	05/26/94	62.51	12.88	49.63	99	<50	<0.5	<0.5	<0.5	1.7	<5.0	NA
MW-3	07/29/94	62.51	13.61	48.90	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	08/26/94	62.51	13.71	48.80	66 [2]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	10/04/94	62.51	13.74	48.77	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	10/27/94	62.51	13.77	48.74	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	11/30/94	62.51	11.85	50.66	78/85	100/100	<0.5/1.9	<0.5/<0.5	<0.5/1.0	2.1/4.3	<5.0	NA
MW-3	01/03/95	62.51	12.09	50.42	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	01/31/95	62.51	10.64	51.87	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	03/16/95	62.51	10.79	51.72	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	06/12/95	62.51	12.05	50.46	120 [2]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	08/30/95	62.51	13.54	48.97	88/57 [3]	<50/<50	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<5.0/<5.0	NA
MW-3	11/29/95	62.51	13.72	48.79	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	03/06/96	62.51	10.78	51.73	140 [3]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	07/08/96	62.51	13.39	49.12	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
MW-3	04/04/97	62.51	13.23	49.28	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<3
MW-3	09/23/97	62.51	13.35	49.16	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<5
MW-3	03/30/98	62.51	12.16	50.35	75	<50	<0.5	<0.5	<0.5	0.64	NA	<5
MW-3	09/02/98	62.51	13.19	49.32	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<3

Table 1

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Well	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet MSL*)	TPH Diesel (µg/L)	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total Oil & Grease (mg/L)	MTBE (µg/L)
<p>MSL = Mean sea level.                      * Noted to be under pressure when opened.                      µg/L = Micrograms per liter.                      mg/L = Milligrams per liter.                      TPH = Total petroleum hydrocarbons.                      MTBE = Methyl-tert-butylether.                      NA = Not analyzed.                      Results of duplicate sample analyses are shown by a slash ("/").                      [1] Primarily due to lighter petroleum product of hydrocarbon range C6-C12, possibly gasoline (data obtained from and references made by the Woodward-Clyde report dated 9/24/96).                      [2] Primarily due to heavier petroleum product of hydrocarbon range C18-C36 (data obtained from and references made by the Woodward-Clyde report dated 9/24/96).                      [3] Due to a combination of diesel and a discrete peak not indicative of diesel fuel (data obtained from and references made by the Woodward-Clyde report dated 9/24/96).                      [4] Due to the presence of discrete peaks not indicative of diesel fuel (data obtained from and references made by the Woodward-Clyde report dated 9/24/96).                      [5] The MRL was elevated due to high analyte concentration requiring sample dilution.</p>												

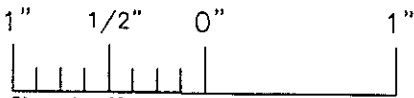


IMAGE Files: <No Images>  
 XREF Files: <No Xrefs>  
 SANJOSE/CADD: N:\DWG\2605103\IBC-OAKC.DWG Tue, 15/Dec/98 03:33pm ktroyer

53RD STREET

PARKING

FORMER UST EXCAVATION AREA  
 (UNPAVED, FILLED WITH GRAVEL)

THRIFTY RETAIL  
 BAKERY OUTLET

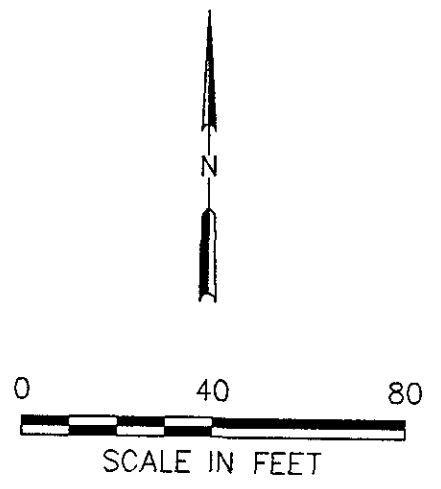
MW-1  
 (280/1,400/7/<12)

MW-2  
 (<50/<50/<0.5/<3)

MW-3  
 (<50/<50/<0.5/<3)

EXISTING  
 MAINTENANCE  
 AND  
 WAREHOUSE  
 FACILITY

HOIST UNIT



EXPLANATION

● Monitoring well

(280/1,400/7/<12) Concentration of total petroleum hydrocarbons as diesel (TPHD), total petroleum hydrocarbons as gasoline (TPHG), benzene, and MTBE in groundwater (ug/L); samples collected 9/2/98

< Not detected at or above the indicated laboratory detection limit



Base map adapted from plan by  
 Woodward-Clyde Consultants,  
 dated 7/8/96

DATE NOV. 1998  
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 PROJECT NO.  
 22605-103.002

**FIGURE 1**  
 INTERSTATE BRANDS CORPORATION  
 945 53RD STREET  
 OAKLAND, CALIFORNIA  
**GROUNDWATER ANALYTICAL SUMMARY**  
**THIRD QUARTER 1998**

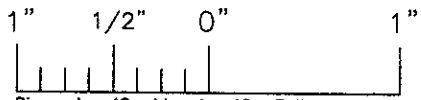
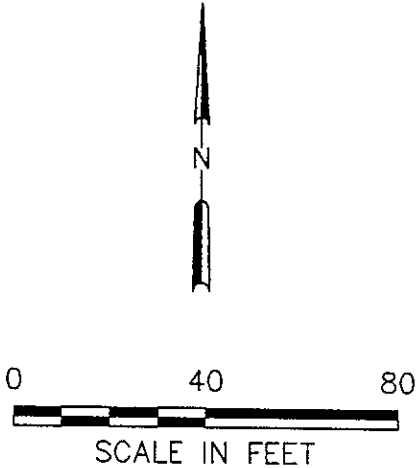
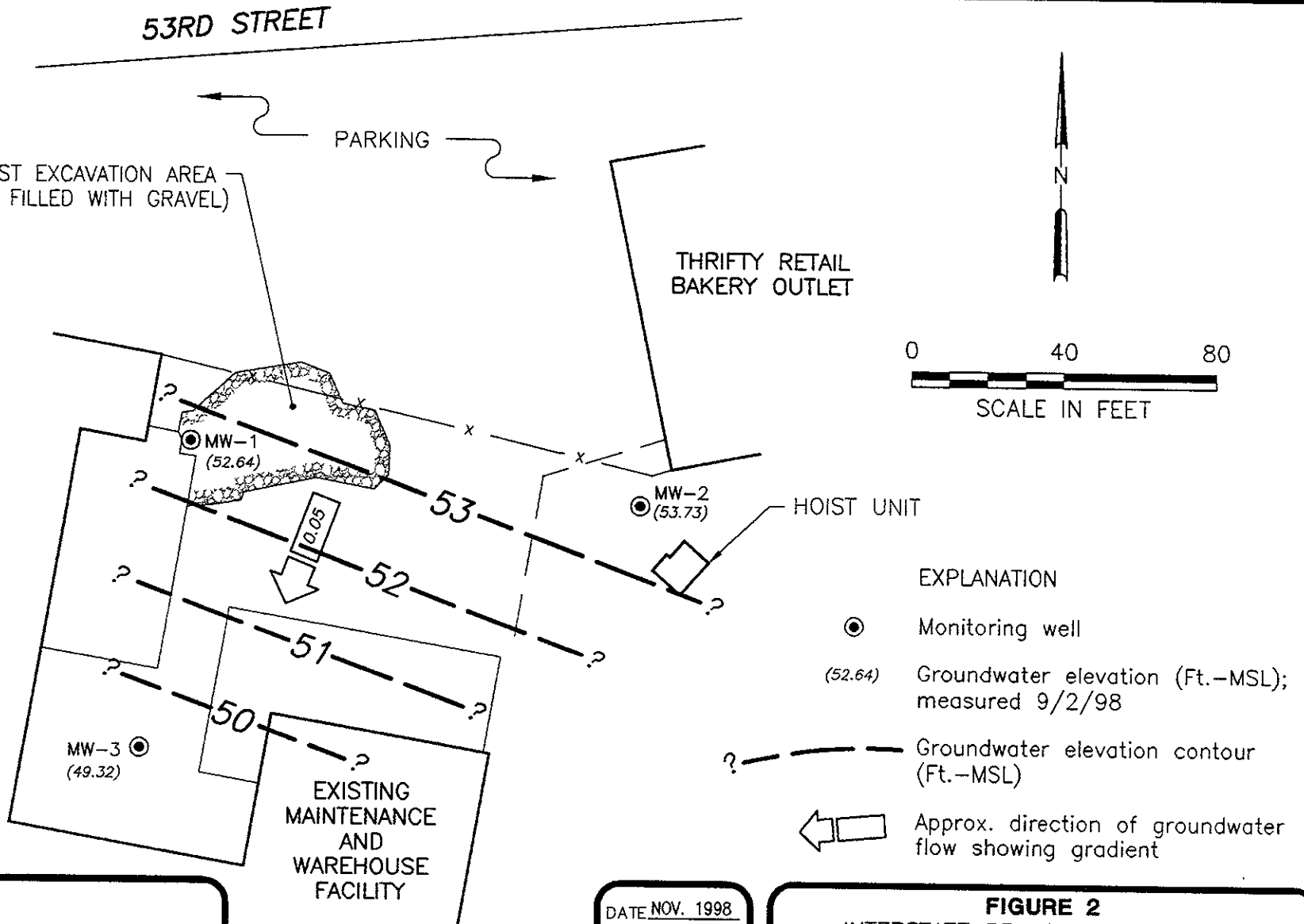


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 PROJECT NO. 22605-103.002

**FIGURE 2**  
 INTERSTATE BRANDS CORPORATION  
 945 53RD STREET  
 OAKLAND, CALIFORNIA  
**GROUNDWATER ELEVATION CONTOURS**  
**THIRD QUARTER 1998**



**APPENDIX A**  
**SAMPLING AND ANALYSIS PROCEDURES**

## APPENDIX A

### SAMPLING AND ANALYSIS PROCEDURES

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The sampling and analysis procedures for water quality monitoring programs are contained in this appendix. The procedures provided for consistent and reproducible sampling methods, proper application of analytical methods, and accurate and precise analytical results. Finally, these procedures provided guidelines so that the overall objectives of the monitoring program were achieved.

The following documents have been used as guidelines for developing these procedures:

- Procedures Manual for Groundwater Monitoring at Solid Waste Disposal Facilities, Environmental Protection Agency (EPA)-530/SW-611, August 1977
- Resource Conservation and Recovery Act (RCRA) Groundwater Monitoring Technical Enforcement Guidance Document, Office of Solid Waste and Emergency Response (OSWER) 9950.1, September 1986
- Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA SW-846, 3rd edition, November 1986
- Methods for Organic Chemical Analysis of Municipal and Industrial Waste Water, EPA-600/4-82-057, July 1982
- Methods for Organic Chemical Analysis of Water and Wastes, EPA-600/4-79-020, revised March 1983
- Leaking Underground Fuel Tank (LUFT) Field Manual, California State Water Resources Control Board, revised October 1989

### Sample Collection

Sample collection procedures include equipment cleaning, water level and total well depth measurements, and well purging and sampling.

## Equipment Cleaning

Before the sampling event was started, equipment that was used to sample groundwater was disassembled and cleaned with detergent water and then rinsed with deionized water. During field sampling, equipment surfaces that were placed in the well or came into contact with groundwater during field sampling were steam cleaned with deionized water before the next well was purged or sampled.

## Water Level, Floating Hydrocarbon, and Total Well Depth Measurements

Before purging and sampling occurred, the depth to water, floating hydrocarbon thickness, and the total well depth were measured using an oil/water interface measuring system. The oil/water interface measuring system consists of a probe that emits a continuous audible tone when immersed in a nonconductive fluid, such as oil or gasoline, and an intermittent tone when immersed in a conductive fluid, such as water. The floating hydrocarbon thickness and water level were measured by lowering the probe into the well. Liquid levels were recorded relative to the tone emitted at the groundwater surface. The sonic probe was decontaminated by being rinsed with deionized water or steam cleaned after each use. A bottom-filling, clear Teflon<sup>®</sup> bailer was used to verify floating hydrocarbon thickness measurements of less than 0.02 foot. Alternatively, an electric sounder and a bottom-filling Teflon bailer may have been used to record floating hydrocarbon thickness and depth to water.

The electric sounder is a transistorized instrument that uses a reel-mounted, two-conductor, coaxial cable that connects the control panel to the sensor. Cable markings are stamped at 1-foot intervals. The water level was measured by lowering the sensor into the monitoring well. A low-current circuit was completed when the sensor contacted the water, which served as an electrolyte. The current was amplified and fed into an indicator light and audible buzzer, signaling when water had been contacted. A sensitivity control compensated for highly saline or conductive water. The electric sounder was decontaminated by being rinsed with deionized water after each use. The bailer was lowered to a point just below the liquid level, retrieved, and observed for floating hydrocarbon.

Liquid measurements were recorded to the nearest 0.01 foot on the depth to water/floating product survey form. The groundwater elevation at each monitoring well was calculated by subtracting the measured depth to water from the surveyed elevation of the top of the well casing. (Every attempt was made to measure depth to water for all wells on the same day.) Total well depth was then measured by lowering the sensor to the bottom of the well. Total well depth, used to calculate purge volumes and to determine whether the well screen was partially obstructed by silt, was recorded to the nearest 0.1 foot on the depth to water/floating product survey form.

## Well Purging

If the depth to groundwater was above the top of screens of the monitoring wells, then the wells were purged. Before sampling occurred, a polyvinyl chloride (PVC) bailer, centrifugal pump, low-flow submersible pump, or Teflon bailer was used to purge standing water in the casing and gravel pack from the monitoring well. Monitoring wells were purged according to the protocol presented in Figure B-1. In most monitoring wells, the amount of water purged before sampling was greater than or equal to three casing volumes. Some monitoring wells were expected to be evacuated to dryness after removing fewer than three casing volumes. These low-yield monitoring wells were allowed to recharge for up to 24 hours. Samples were obtained as soon as the monitoring wells recharged to a level sufficient for sample collection. If insufficient water recharged after 24 hours, the monitoring well was recorded as dry for the sampling event.

Groundwater purged from the monitoring wells was transported in a 500-gallon water trailer, 55-gallon drum, or a 325-gallon truck-mounted tank, to EMCON's San Jose or Sacramento office location for temporary storage. EMCON arranged for transport and disposal of the purged groundwater through Integrated Waste Stream Management, Inc.

Field measurements of pH, specific conductance, and temperature were recorded in a waterproof field logbook. Figure B-2 shows an example of the water sample field data sheet on which field data are recorded. Field data sheets were reviewed for completeness by the sampling coordinator after the sampling event was completed.

The pH, specific conductance, and temperature meter were calibrated each day before field activities were begun. The calibration was checked once each day to verify meter performance. Field meter calibrations were recorded on the water sample field data sheet.

## Well Sampling

A Teflon bailer was the only equipment acceptable for well sampling. When samples for volatile organic analysis were being collected, the flow of groundwater from the bailer was regulated to minimize turbulence and aeration. Glass bottles of at least 40-milliliters volume and fitted with Teflon-lined septa were used in sampling for volatile organics. These bottles were filled completely to prevent air from remaining in the bottle. A positive meniscus formed when the bottle was completely full. A convex Teflon septum was placed over the positive meniscus to eliminate air. After the bottle was capped, it was inverted and tapped to verify that it contained no air bubbles. The sample containers for other parameters were filled, filtered as required, and capped.

When required, dissolved concentrations of metals were determined using appropriate field filtration techniques. The sample was filtered by emptying the contents of the Teflon bailer into a pressure transfer vessel. A disposable 0.45-micron acrylic copolymer filter was threaded onto the transfer vessel at the discharge point, and the vessel was sealed. Pressure was applied to the vessel with a hand pump and the filtrate directed into the appropriate containers. Each filter was used once and discarded.

## **Sample Preservation and Handling**

The following section specifies sample containers, preservation methods, and sample handling procedures.

### **Sample Containers and Preservation**

Sample containers vary with each type of analytical parameter. Container types and materials were selected to be nonreactive with the particular analytical parameter tested.

### **Sample Handling**

Sample containers were labeled immediately prior to sample collection. Samples were kept cool with cold packs until received by the laboratory. At the time of sampling, each sample was logged on a chain-of-custody record that accompanied the sample to the laboratory.

Samples that required overnight storage prior to shipping to the laboratory were kept cool (4°C) in a refrigerator. The refrigerator was kept in a warehouse, which was locked when not occupied by an EMCON employee. A sample/refrigerator log was kept to record the date and time that samples were placed into and removed from the refrigerator.

Samples were transferred from EMCON to an approved laboratory by courier or taken directly to the laboratory by the environmental sampler. Sample shipments from EMCON to laboratories performing the selected analyses routinely occurred within 24 hours of sample collection.

### **Sample Documentation**

The following procedures were used during sampling and analysis to provide chain-of-custody control during sample handling from collection through storage. Sample documentation included the use of the following:

- Water sample field data sheets to document sampling activities in the field
- Labels to identify individual samples
- Chain-of-custody record sheets for documenting possession and transfer of samples
- Laboratory analysis request sheets for documenting analyses to be performed

## Field Logbook

In the field, the sampler recorded the following information on the water sample field data sheet (see Figure B-2) for each sample collected:

- Project number
- Client's name
- Location
- Name of sampler
- Date and time
- Well accessibility and integrity
- Pertinent well data (e.g., casing diameter, depth to water, well depth)
- Calculated and actual purge volumes
- Purging equipment used
- Sampling equipment used
- Appearance of each sample (e.g., color, turbidity, sediment)
- Results of field analyses (temperature, pH, specific conductance)
- General comments

The water sample field data sheet was signed by the sampler and reviewed by the sampling coordinator.

## Labels

Sample labels contained the following information:

- Project number
- Sample number (i.e., well designation)
- Sample depth
- Sampler's initials
- Date and time of collection
- Type of preservation used (if any)

## Sampling and Analysis Chain-of-Custody Record

The chain-of-custody record initiated at the time of sampling contained, at a minimum, the sample designation (including the depth at which the sample was collected), sample type, analytical request, date of sampling, and the name of the sampler. The record sheet was signed, timed, and dated by the sampler when transferring the samples. The number of custodians in the chain of possession was minimized. A copy of the chain-of-custody record was returned to EMCON with the analytical results.

## Groundwater Sampling and Analysis Request Form

A groundwater sampling and analysis request form (see Figure B-3) was used to communicate to the environmental sampler the requirements of the monitoring event. At a minimum, the groundwater sampling and analysis request form included the following information:

- Date scheduled
- Site-specific instructions
- Specific analytical parameters
- Well number
- Well specifications (expected total depth, depth of water, and product thickness)



OWT

# MONITORING WELL PURGING PROTOCOL

MEASURE AND RECORD DEPTH TO WATER AND WELL TOTAL DEPTH

CHECK FOR FLOATING PRODUCT

YES

MEASURE AND DOCUMENT FLOATING PRODUCT THICKNESS. DO NOT SAMPLE WELL FOR DISSOLVED CONSTITUENTS.

NO

CALCULATE PURGE VOLUME BY USING THE FOLLOWING EQUATION:  
 $P = \pi r^2 \times 7.48 \times h$

where:

P = calculated purge volume (gallons)

$\pi = 3.14$

r = radius of well casing in feet

h = height of water column in feet

WELL EVACUATED TO PRACTICAL LIMITS OF DRYNESS BEFORE REMOVING CALCULATED PURGE VOLUME

EVACUATE WATER FROM WELL EQUAL TO THE CALCULATED PURGE VOLUME WHILE MONITORING GROUNDWATER STABILIZATION INDICATOR PARAMETERS (pH, CONDUCTIVITY, TEMPERATURE) AT INTERVALS OF ONE CASING VOLUME.

NO

YES

FINAL TWO SETS OF GROUNDWATER STABILIZATION INDICATOR PARAMETER MEASUREMENTS MEET THE FOLLOWING CRITERIA:

pH = ± 0.1 pH units

COND. = ± 10 %

TEMP. = ± 1.0 °F

WELL RECHARGES TO A LEVEL SUFFICIENT FOR SAMPLE COLLECTION WITHIN 24 HOURS OF EVACUATION TO DRYNESS.

YES

NO

YES

NO

WELL PURGING CRITERIA MET: PROCEED TO WELL SAMPLING.

CONTINUE PURGING: EVACUATE ADDITIONAL CASING VOLUME OF WATER. MONITORING INDICATOR PARAMETERS FOR STABILITY.

FIELD TEST FIRST RECHARGE WATER FOR INDICATOR PARAMETERS, THEN PROCEED TO WELL SAMPLING.

RECORD WELL AS DRY FOR PURPOSES OF SAMPLING.



EMCON

MONITORING WELL PURGING PROTOCOL

FIGURE

A-1



# WATER SAMPLE FIELD DATA SHEET

Rev. 5/96



**OWT**

PROJECT NO : \_\_\_\_\_  
 PURGED BY : \_\_\_\_\_  
 SAMPLED BY : \_\_\_\_\_

SAMPLE ID : \_\_\_\_\_  
 CLIENT NAME : \_\_\_\_\_  
 LOCATION : \_\_\_\_\_

TYPE: Groundwater \_\_\_\_\_ Surface Water \_\_\_\_\_ Leachate \_\_\_\_\_ Other \_\_\_\_\_

CASING DIAMETER (inches): 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 4.5 \_\_\_\_\_ 6 \_\_\_\_\_ Other \_\_\_\_\_

CASING ELEVATION (feet/MSL) : _____	VOLUME IN CASING (gal.) : _____
DEPTH OF WELL (feet) : _____	CALCULATED PURGE (gal.) : _____
DEPTH OF WATER (feet) : _____	ACTUAL PURGE VOL (gal.) : _____

DATE PURGED : \_\_\_\_\_ END PURGE : \_\_\_\_\_  
 DATE SAMPLED : \_\_\_\_\_ SAMPLING TIME : \_\_\_\_\_

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°C)	TEMPERATURE (°F)	TURBIDITY (visual/NTU)	TIME (2400 HR)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

OTHER: \_\_\_\_\_ ODOR: \_\_\_\_\_  
(COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): \_\_\_\_\_

<u>PURGING EQUIPMENT</u>		<u>SAMPLING EQUIPMENT</u>	
_____ 2" Bladder Pump	_____ Bailer (Teflon)	_____ 2" Bladder Pump	_____ Bailer (Teflon)
_____ Centrifugal Pump	_____ Bailer (PVC)	_____ Bomb Sampler	_____ Bailer (Stainless Steel)
_____ Submersible Pump	_____ Bailer (Stainless Steel)	_____ Dipper	_____ Submersible Pump
_____ Well Wizard™	_____ Dedicated	_____ Well Wizard™	_____ Dedicated
Other: _____		Other: _____	

WELL INTEGRITY: \_\_\_\_\_ LOCK: \_\_\_\_\_

REMARKS: \_\_\_\_\_

pH, E.C., Temp. Meter Calibration Date: \_\_\_\_\_ Time: \_\_\_\_\_ Meter Serial No.: \_\_\_\_\_  
 E.C. 1000 \_\_\_\_\_ / \_\_\_\_\_ pH 7 \_\_\_\_\_ / \_\_\_\_\_ pH 10 \_\_\_\_\_ / \_\_\_\_\_ pH 4 \_\_\_\_\_ / \_\_\_\_\_  
 Temperature °F \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ REVIEWED BY: \_\_\_\_\_ PAGE \_\_\_\_\_ OF \_\_\_\_\_



WATER SAMPLE FIELD DATA SHEET

FIGURE  
**A-2**



OWT

EMCON - SACRAMENTO  
GROUNDWATER SAMPLING AND ANALYSIS REQUEST FORM

PROJECT NAME :

SCHEDULED DATE :

SPECIAL INSTRUCTIONS / CONSIDERATIONS :

[Large empty box for special instructions]

Project Authorization: \_\_\_\_\_  
EMCON Project No.: \_\_\_\_\_  
OWT Project No.: \_\_\_\_\_  
Task Code: \_\_\_\_\_  
Originals To: \_\_\_\_\_  
cc: \_\_\_\_\_

Well Lock Number (s)

CHECK BOX TO AUTHORIZE DATA ENTRY

Site Contact:

Well Number or Source	Casing Diameter (inches)	Casing Length (feet)	Depth to Water (feet)	Name	Phone #
				ANAYSES REQUESTED	

Laboratory and Lab QC Istructions:



EMCON

SAMPLING AND ANALYSIS REQUEST FORM

FIGURE

A-3

**APPENDIX B**

**LABORATORY ANALYSIS REPORTS  
AND CHAIN-OF-CUSTODY RECORDS**



September 22, 1998

Service Request No.: S9802346

Glen Vanderveen  
PINNACLE  
144 A Mayhew Wy.  
Walnut Creek, CA 94596

**RE: IBC-Oakland/22605-103.001**

Dear Mr. Vanderveen:

The following pages contain analytical results for sample(s) received by the laboratory on September 8, 1998. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

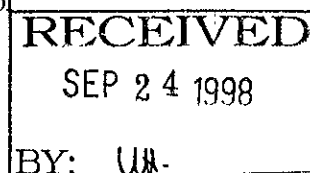
Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 10, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Steven L. Green  
Project Chemist

Greg Anderson  
Regional QA Coordinator



COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

**COLUMBIA ANALYTICAL SERVICES, INC.**

**Analytical Report**

**Client:** EMCON  
**Project:** IBC-Oakland/22605-103.001  
**Sample Matrix:** Water

**Service Request:** S9802346  
**Date Collected:** 9/2/98  
**Date Received:** 9/8/98

**TPH as Diesel**

**Prep Method:** EPA 3510  
**Analysis Method:** CA/LUFT  
**Test Notes:**

**Units:** ug/L (ppb)  
**Basis:** NA

<b>Sample Name</b>	<b>Lab Code</b>	<b>MRL</b>	<b>Dilution Factor</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Result</b>	<b>Result Notes</b>
MW-1	S9802346-001	50	1	9/12/98	9/14/98	280	D1
MW-2	S9802346-002	50	1	9/12/98	9/15/98	ND	
MW-3	S9802346-003	50	1	9/12/98	9/15/98	ND	
Method Blank	S980912-MB	50	1	9/12/98	9/14/98	ND	

D1 Quantitated as Diesel. The sample contained components that eluted in the diesel range, but the chromatogram did not match the typical diesel fingerprint.

**COLUMBIA ANALYTICAL SERVICES, INC.**

Analytical Report

**Client:** EMCON  
**Project:** IBC-Oakland/22605-103.001  
**Sample Matrix:** Water

**Service Request:** S9802346  
**Date Collected:** 9/2/98  
**Date Received:** 9/8/98

BTEX, MTBE and TPH as Gasoline

**Sample Name:** MW-1  
**Lab Code:** S9802346-001  
**Test Notes:** 112

**Units:** ug/L (ppb)  
**Basis:** NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result <sup>1</sup>	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	4	NA	9/21/98	1400	
Benzene	EPA 5030	8020	0.5	4	NA	9/21/98	7	
Toluene	EPA 5030	8020	0.5	4	NA	9/21/98	7	
Ethylbenzene	EPA 5030	8020	0.5	4	NA	9/21/98	90	
Xylenes, Total	EPA 5030	8020	0.5	4	NA	9/21/98	120	
Methyl <i>tert</i> -Butyl Ether	EPA 5030	8020	3	4	NA	9/21/98	<12	C1

C1 The MRL was elevated due to high analyte concentration requiring sample dilution.  
H2 Sample was analyzed past the end of the recommended maximum hold time.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON  
 Project: IBC-Oakland/22605-103.001  
 Sample Matrix: Water

Service Request: S9802346  
 Date Collected: 9/2/98  
 Date Received: 9/8/98

BTEX, MTBE and TPH as Gasoline

Sample Name: MW-2  
 Lab Code: S9802346-002  
 Test Notes: H2

Units: ug/L (ppb)  
 Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	9/21/98	ND	
Benzene	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Toluene	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Ethylbenzene	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Xylenes, Total	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Methyl <i>tert</i> -Butyl Ether	EPA 5030	8020	3	1	NA	9/21/98	ND	

H2 Sample was analyzed past the end of the recommended maximum hold time.



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

**Client:** EMCON  
**Project:** IBC-Oakland/22605-103.001  
**Sample Matrix:** Water

**Service Request:** S9802346  
**Date Collected:** 9/2/98  
**Date Received:** 9/8/98

BTEX, MTBE and TPH as Gasoline

**Sample Name:** MW-3  
**Lab Code:** S9802346-003  
**Test Notes:** H2

**Units:** ug/L (ppb)  
**Basis:** NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	9/21/98	ND	
Benzene	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Toluene	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Ethylbenzene	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Xylenes, Total	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Methyl <i>tert</i> -Butyl Ether	EPA 5030	8020	3	1	NA	9/21/98	ND	

H2 Sample was analyzed past the end of the recommended maximum hold time.

**COLUMBIA ANALYTICAL SERVICES, INC.**

Analytical Report

**Client:** EMCON  
**Project:** IBC-Oakland/22605-103.001  
**Sample Matrix:** Water

**Service Request:** S9802346  
**Date Collected:** NA  
**Date Received:** NA

BTEX, MTBE and TPH as Gasoline

**Sample Name:** Method Blank  
**Lab Code:** S980921-WB1  
**Test Notes:**

**Units:** ug/L (ppb)  
**Basis:** NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	9/21/98	ND	
Benzene	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Toluene	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Ethylbenzene	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Xylenes, Total	EPA 5030	8020	0.5	1	NA	9/21/98	ND	
Methyl <i>tert</i> -Butyl Ether	EPA 5030	8020	3	1	NA	9/21/98	ND	

APPENDIX A

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

**Client:** EMCON  
**Project:** H3C-Oakland/22605-103.001  
**Sample Matrix:** Water

**Service Request:** S9802346  
**Date Collected:** NA  
**Date Received:** NA  
**Date Extracted:** NA  
**Date Analyzed:** NA

Surrogate Recovery Summary  
TPH as Diesel

**Prep Method:** EPA 3510  
**Analysis Method:** CALUFT

**Units:** PERCENT  
**Basis:** NA

Sample Name	Lab Code	Test Notes	Percent Recovery p-Terphenyl
MW-1	S9802346-001		92
MW-2	S9802346-002		98
MW-3	S9802346-003		111
Method Blank	S980912-MB		92

CAS Acceptance Limits: 41-140

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON  
Project: IBC-Oakland/22605-103.001  
Sample Matrix: Water

Service Request: S9802346  
Date Collected: NA  
Date Received: NA  
Date Extracted: NA  
Date Analyzed: NA

Surrogate Recovery Summary  
BTEX, MTBE and TPH as Gasoline

Prep Method: EPA 5030  
Analysis Method: 8020 CA/LUFT

Units: PERCENT  
Basis: NA

Sample Name	Lab Code	Test Notes	Percent Recovery	
			4-Bromofluorobenzene	a,a,a-Trifluorotoluene
MW-1	S9802346-001		106	101
MW-2	S9802346-002		109	96
MW-3	S9802346-003		108	100
Method Blank	S980921-WB1		100	97

CAS Acceptance Limits: 69-116 69-116



**APPENDIX C**  
**FIELD DATA SHEETS**









# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO: 22605-103.001  
 PURGED BY: B. Heurides  
 SAMPLED BY: ↓

SAMPLE ID: MW-2  
 CLIENT NAME: IBC  
 LOCATION: Oakland

TYPE: Groundwater  Surface Water  Leachate  Other   
 CASING DIAMETER (inches): 2  3  4  4.5  6  Other

CASING ELEVATION (feet/MSL):                      VOLUME IN CASING (gal.): 6.6  
 DEPTH OF WELL (feet): 19.6 CALCULATED PURGE (gal.): 20.8  
 DEPTH TO WATER (feet): 9.37 ACTUAL PURGE VOL. (gal.): 20.8

DATE PURGED: 9/2/98 END PURGE: 1234  
 DATE SAMPLED: ↓ SAMPLING TIME: 1242

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1228</u>	<u>7.0</u>	<u>6.18</u>	<u>422</u>	<u>73.1</u>	<u>lt Brown</u>	<u>low</u>
<u>1230</u>	<u>14.0</u>	<u>6.37</u>	<u>424</u>	<u>72.4</u>	<u>↓</u>	<u>↓</u>
<u>1234</u>	<u>20.0</u>	<u>6.57</u>	<u>441</u>	<u>71.7</u>	<u>↓</u>	<u>↓</u>

OTHER:                      ODOR: None  
 FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1):                      (COBALT D-100) (NTU 0-200)

### PURGING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Well Wizard  Dedicated  
 Other:                     

### SAMPLING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Bomb Sampler  Bailer (Stainless Steel)  
 Dipper  Submersible Pump  
 Well Wizard  Dedicated  
 Other:                     

WELL INTEGRITY: Good 9/16" LOCK: 0464

REMARKS: \* 1st does not secure properly - no threads \* to bolt in to.

pH, E.C., Temp. Meter Calibration: Date: 9/2/98 Time: 1218 Meter Serial No.:                       
 E.C. 1989 1915, 1413 pH 7 7.04, 7.00 pH 10 9.90, 10.00 pH 4 3.88, 4.00  
 Temperature °F 86.7

SIGNATURE: BH REVIEWED BY: [Signature] PAGE 2 OF 3



# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO: 22605-103.001  
PURGED BY: B. Hendricks  
SAMPLED BY: ↓

SAMPLE ID: MW-3  
CLIENT NAME: FBC  
LOCATION: Oakland

TYPE: Groundwater  Surface Water  Leachate  Other   
CASING DIAMETER (inches): 2  3  4  4.5  6  Other

CASING ELEVATION (feet/MSL):        VOLUME IN CASING (gal.): 4.1  
DEPTH OF WELL (feet): 19.5 CALCULATED PURGE (gal.): 12.4  
DEPTH TO WATER (feet): 13.19 ACTUAL PURGE VOL. (gal.): 12.5

DATE PURGED: 9/2/98 END PURGE: 1318  
DATE SAMPLED: ↓ SAMPLING TIME: 1324

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1312</u>	<u>5.0</u>	<u>6.69</u>	<u>1040</u>	<u>69.7</u>	<u>lt Brown</u>	<u>low</u>
<u>1316</u>	<u>16.0</u>	<u>6.84</u>	<u>1026</u>	<u>69.1</u>	<u>grey</u>	<u>mod</u>
<u>1318</u>	<u>12.5</u>	<u>6.78</u>	<u>963</u>	<u>68.9</u>	<u>↓</u>	<u>↓</u>

OTHER:   /   ODOR: Slight  
COBALT 3-100   /   (NTU 0-200)   /  

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1):   /  

### PURGING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Well Wizard<sup>®</sup>  Dedicated

Other:   /  

### SAMPLING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Bomb Sampler  Bailer (Stainless Steel)  
 Dipper  Submersible Pump  
 Well Wizard<sup>®</sup>  Dedicated

Other:   /  

WELL INTEGRITY: Good w/c LOCK: 0464

REMARKS:   /    
  /    
  /  

pH, E.C., Temp. Meter Calibration: Date: See MW-2 Time:   /   Meter Serial No.:   /    
E.C. 1000   /   pH 7   /   pH 10   /   pH 4   /    
Temperature °F   /  

SIGNATURE: BA REVIEWED BY:   /   PAGE 3 OF 3



# CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

1433 North Market Boulevard, Sacramento, CA 95834

Service Request No: \_\_\_\_\_

Purchase Order: \_\_\_\_\_

EMCON (916) 928-3300 FAX (916) 928-3341

Lab: Columbia Analytical

Project Name: IBC-Oakland  
 Project Number: 22605-103.001  
 Project Manager: Glen VanderVeen  
 Company: EMCON-Pinnacle  
 Address: 144 A Mayhew Way  
 Walnut Creek, Ca 94596  
 Phone: (510) 977-9020  
 FAX: (510) 977-9030  
 Sampler's Signature: Bria Hendricks

					Analysis Requested												REMARKS							
Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	TPHG/BTEX (8015/8020)	MTBE (8020)	TPHD (8015)																
						MW-1	9/2/98	1412		water	5	3 ✓	2 ✓											
MW-2	↓	1242		water	5	3 ✓	2 ✓																	
MW-3	↓	1324		water	5	3 ✓	2 ✓																	

<b>RELINQUISHED BY</b> <u>Bria Hendricks</u>	<b>RECEIVED BY</b> <u>Joseph Machado</u>
Signature <u>Bria Hendricks</u>	Signature <u>JOSEPH MACHADO</u>
Printed Name <u>EMCON / CWT</u>	Printed Name <u>CAS</u>
Firm <u>9/2/98 9:55am</u>	Firm <u>9/8/98 9:55am</u>
Date/Time	Date/Time

<b>RELINQUISHED BY</b>	<b>RECEIVED BY</b>
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

**TURNAROUND REQUIREMENTS**  
 24 hr \_\_\_\_\_ 48 hr \_\_\_\_\_ 5 day \_\_\_\_\_  
 Standard (-10-15 working days)  
 Provide Verbal Preliminary Results \_\_\_\_\_  
 Provide FAX Preliminary Results \_\_\_\_\_  
 Requested Report Date: \_\_\_\_\_

**REPORT REQUIREMENTS**  
 I. Routine Report  
 II. Report (includes DUP, MS MSD, as required, may be charged as samples)  
 III. Data Validation Report (includes All Raw Data)  
 RWQCB  
 (MDLs/PQLs/TRACE#)

<b>RELINQUISHED BY</b>	<b>RECEIVED BY</b>
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

**Special Instructions/Comments:**

Columbia Analytical  
 3334 Victor Court  
 Santa Clara, Ca  
 408-748-9700  
 Contact: Bernadette Cox

**Container Types Key:**

40 ml VOA:	1
250 ml LPE:	2
500 ml LPE:	3
1 liter HDPE:	4
500 ml glass:	5
1 liter glass:	6
2x6 s/s ring:	7